## KM2520SURCK03

Subminiature Solid State Lamp



### DESCRIPTIONS

- The Hyper Red source color devices are made with AlGaInP on GaAs substrate Light Emitting Diode
- · Electrostatic discharge and power surge could damage the LEDs
- · It is recommended to use a wrist band or anti-electrostatic glove when handling the LEDs
- · All devices, equipments and machineries must be electrically grounded

### **FEATURES**

- Subminiature package
- · Gull wing lead
- · Long life solid state reliability
- · Low package profile
- Moisture sensitivity level: 3
- · Package: 1000 pcs / reel
- · Halogen-free
- RoHS compliant

### **APPLICATIONS**

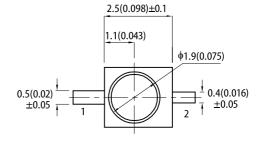
- Backlight
- Status indicator
- · Home and smart appliances
- Wearable and portable devices
- · Healthcare applications

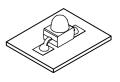
### **ATTENTION**

Observe precautions for handling electrostatic discharge sensitive devices

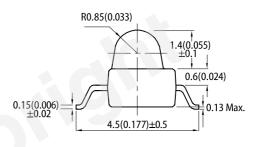


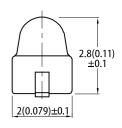
## **PACKAGE DIMENSIONS**





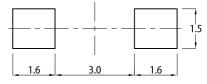






### **RECOMMENDED SOLDERING PATTERN**

(units : mm; tolerance :  $\pm$  0.1)



Notes

All dimensions are in millimeters (inches).
Tolerance is ±0.25(0.01") unless otherwise noted.

The specifications, characteristics and technical data described in the datasheet are subject to change without prior notice.
The device has a single mounting surface. The device must be mounted according to the specifications.

### **SELECTION GUIDE**

Part Number	Emitting Color	Lens Type	lv (mcd) @ 20mA <sup>[2]</sup>		Viewing Angle <sup>[1]</sup>	
r art Number	(Material)		Тур.	201/2		
KM2520SURCK03	Hyper Red (AlGaInP)	Water Clear	1900	3000	20°	
			*700	*1200	20	

Notes

41/2 is the angle from optical centerline where the luminous intensity is 1/2 of the optical peak value.
2. Luminous intensity / luminous flux: +/-15%.
\* Luminous intensity value is traceable to CIE127-2007 standards.

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### ELECTRICAL / OPTICAL CHARACTERISTICS at T<sub>A</sub>=25°C

Parameter	Symbol	Emitting Color	Value			Unit
Parameter	Symbol	Emitting Color	Тур.	Max.       -       -       -       -       -       2.5		
Wavelength at Peak Emission $I_F$ = 20mA	$\lambda_{peak}$	Hyper Red	645	-	nm	
Dominant Wavelength I <sub>F</sub> = 20mA	$\lambda_{dom}$ <sup>[1]</sup>	Hyper Red	630	-	nm	
Spectral Bandwidth at 50% $\Phi$ REL MAX I <sub>F</sub> = 20mA	Δλ	Hyper Red	28	-	nm	
Capacitance	С	Hyper Red	35	-	pF	
Forward Voltage I <sub>F</sub> = 20mA	V <sub>F</sub> <sup>[2]</sup>	Hyper Red	1.95	2.5	V	
Reverse Current ( $V_R = 5V$ )	I <sub>R</sub>	Hyper Red	-	10	μΑ	
Temperature Coefficient of $\lambda_{\text{peak}}$ $I_F$ = 20mA, -10°C $\leq T \leq 85^\circ C$	TC <sub>λpeak</sub>	Hyper Red	0.14	-	nm/°C	
Temperature Coefficient of $\lambda_{dom}$ $I_F$ = 20mA, -10°C $\leq T \leq 85°C$	TC <sub>λdom</sub>	Hyper Red	0.05	-	nm/°C	
Temperature Coefficient of $~V_F$ $I_F$ = 20mA, -10°C $\leq$ T $\leq$ 85°C	TCv	Hyper Red	-1.9	-	mV/°C	

Notes:

Notes:
The dominant wavelength (λd) above is the setup value of the sorting machine. (Tolerance λd : ±1nm.)
Forward voltage: ±0.1V.
Wavelength value is traceable to CIE127-2007 standards.
Excess driving current and / or operating temperature higher than recommended conditions may result in severe light degradation or premature failure.

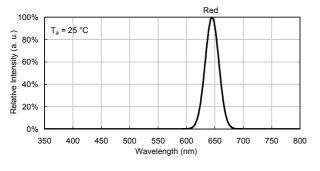
### ABSOLUTE MAXIMUM RATINGS at T<sub>A</sub>=25°C

Parameter	Symbol	Value	Unit
Power Dissipation	P <sub>D</sub>	75	mW
Reverse Voltage	V <sub>R</sub>	5	V
Junction Temperature	Tj	115	°C
Operating Temperature	T <sub>op</sub>	-40 to +85	°C
Storage Temperature	T <sub>stg</sub>	-40 to +85	°C
DC Forward Current	l <sub>F</sub>	30	mA
Peak Forward Current	I <sub>FM</sub> <sup>[1]</sup>	185	mA
Electrostatic Discharge Threshold (HBM)	-	3000	V
Thermal Resistance (Junction / Ambient)	R <sub>th JA</sub> <sup>[2]</sup>	530	°C/W
Thermal Resistance (Junction / Solder point)	R <sub>th JS</sub> <sup>[2]</sup>	340	°C/W

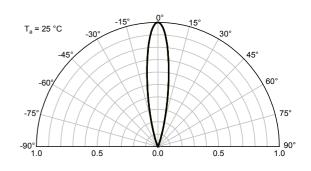
Notes: 1. 1/10 Duty Cycle, 0.1ms Pulse Width. 2. R<sub>In. J.A</sub>. R<sub>In. J.S</sub> Results from mounting on PC board FR4 (pad size ≥ 16 mm<sup>2</sup> per pad). 3. Relative humidity levels maintained between 40% and 60% in production area are recommended to avoid the build-up of static electricity – Ref JEDEC/JESD625-A and JEDEC/J-STD-033.

### **TECHNICAL DATA**

### **RELATIVE INTENSITY vs. WAVELENGTH**



### SPATIAL DISTRIBUTION



2.5

2.0

1.5

1.0

0.5

0.0

Luminous intensity normalised

80 100

at Ta = 25  $^{\circ}$ C

Luminous Intensity vs. Ambient Temperature

-40 -20 0 20 40 60 80 100

Ambient temperature (°C)

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Permissible forward current

50

40

(mA) 20

50

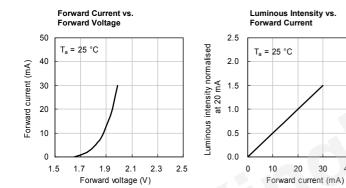
40

30

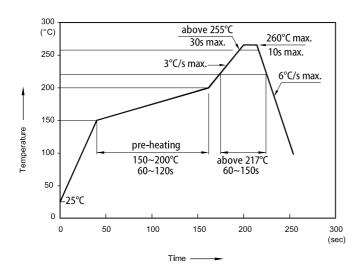
10

0

-40 -20



### **REFLOW SOLDERING PROFILE for LEAD-FREE SMD PROCESS**



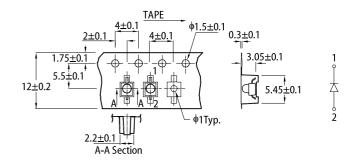
- Notes: 1. Don't cause stress to the LEDs while it is exposed to high temperature. 2. The maximum number of reflow soldering passes is 2 times. 3. Reflow soldering is recommended. Other soldering methods are not recommended as they might cause damage to the product.

#### TAPE SPECIFICATIONS (units : mm)

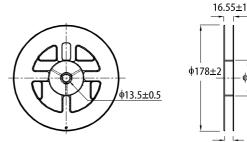
0 20 40 60

Ambient temperature (°C)

Forward Current Derating Curve



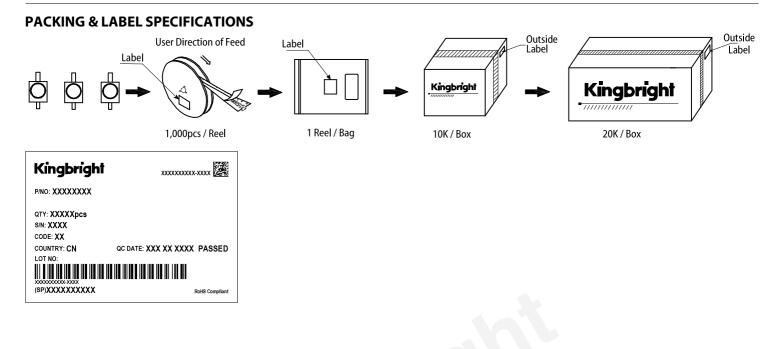
#### REEL DIMENSION (units : mm)



¢60±2

13.7±1

# **KM2520SURCK03**



### **PRECAUTIONARY NOTES**

- 1. 2.
- The information included in this document reflects representative usage scenarios and is intended for technical reference only. The part number, type, and specifications mentioned in this document are subject to future change and improvement without notice. Before production usage customer should refer to The part datasheet for the updated specifications. When using the products referenced in this document, please make sure the product is being operated within the environmental and electrical limits specified in the datasheet. If
- 3.
- The information in this document applies to typical usage in consumer electronics applications. If customer's application has special reliability requirements or have life-threatening liabilities, such as automotive or medical usage, please consult with Kingbright representative for further assistance. The contents and information of this document may not be reproduced or re-transmitted without permission by Kingbright. 4.
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